

Patent

Attorney Docket No. 030681-346

What is claimed is:

1. An anode thin film for a lithium secondary battery having a current collector and an anode active material layer formed thereon, wherein the anode active material layer contains an intermetallic compound of tin (Sn) and nickel (Ni).

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2. The anode thin film of claim 1, wherein the intermetallic compound is Ni_3Sn_4 .

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3. A method of preparing an anode thin film of claim 1 by mosaic-sputtering tin (Sn) and metallic nickel (Ni).

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4. The method of claim 3, wherein the intermetallic compound is Ni_3Sn_4 .

5. A method of preparing an anode thin film of claim 1 by co-sputtering tin (Sn) and metallic nickel (Ni).

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6. The method of claim 5, wherein the intermetallic compound is Ni_3Sn_4 .

7. A method of preparing an anode thin film of claim 1 by sputtering a single target containing tin (Sn) and metallic nickel (Ni).

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8. The method of claim 7, wherein the intermetallic compound is Ni_3Sn_4 .

9. A method of preparing an anode thin film of claim 1 by forming an intermetallic compound evaporation source of tin (Sn) and metallic nickel (Ni) by a mechanical alloying method and depositing the intermetallic compound evaporation source by at least selected from the group consisting of e-beam evaporation and ion beam assisted deposition (IBAD).

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10. The method of claim 9, wherein the intermetallic compound is Ni_3Sn_4 .

11. A lithium secondary battery employing an anode thin film having a current collector and an anode active material layer formed thereon, wherein the anode active material layer contains an intermetallic compound of tin (Sn) and nickel (Ni).

12. The lithium secondary battery of claim 11, wherein the intermetallic compound is Ni_3Sn_4 .

13. The lithium secondary battery of claim 11, wherein the battery is a thin film battery.

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